Special Status Plant Species
San Pasqual Undergrounding Project

July 2016

Prepared for:
City of Escondido
Vista Irrigation District
Bureau of Indian Affairs

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<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>BIA</td>
<td>Bureau of Indian Affairs</td>
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<tr>
<td>CDFW</td>
<td>California Department of Fish and Wildlife</td>
</tr>
<tr>
<td>CESA</td>
<td>California Endangered Species Act</td>
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<tr>
<td>CNDDB</td>
<td>California Natural Diversity Database</td>
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<tr>
<td>CNPS</td>
<td>California Native Plant Society</td>
</tr>
<tr>
<td>CSS</td>
<td>Coastal sage scrub</td>
</tr>
<tr>
<td>FESA</td>
<td>Federal Endangered Species Act</td>
</tr>
<tr>
<td>in/hr</td>
<td>inch(es) per hour</td>
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<tr>
<td>MSCP</td>
<td>Multiple Species Conservation Plan</td>
</tr>
<tr>
<td>ROW</td>
<td>Right-of-way</td>
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<tr>
<td>SDNHM</td>
<td>San Diego Natural History Museum</td>
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<td>San Pasqual Band</td>
<td>San Pasqual Band of Mission Indians</td>
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<td>U.S.</td>
<td>United States</td>
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<td>USDA</td>
<td>U.S. Department of Agriculture</td>
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<td>USFWS</td>
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<td>USGS</td>
<td>U.S. Geological Survey</td>
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<td>VID</td>
<td>Vista Irrigation District</td>
</tr>
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</table>
1.0 Summary
Atkins conducted rare plant surveys within the San Pasqual Undergrounding Project (proposed project) study area (Figures 1 and 2). Atkins’ biologists, conducted rare plant surveys between February and June 2016. Two rare plant species were observed within and adjacent to the study area.

2.0 Introduction
On behalf of the City of Escondido (Escondido), Vista Irrigation District (VID), and the Bureau of Indian Affairs (BIA), Atkins conducted rare plant surveys within the project study area located in Valley Center and the San Pasqual Reservation in San Diego County (Figures 1 and 2).

2.1 Project Description
The proposed action is an integral component of the San Luis Rey Indian Water Rights Settlement Agreement (January 30, 2015) including the United States (acting through the Secretary of the Interior and the Attorney General of the United States); the La Jolla, Rincon, San Pasqual, Pauma, and Pala Bands of Mission Indians; the San Luis Rey Indian Water Authority (SLRIWA); Escondido; and VID. The Settlement is authorized by the Act of November 30, 1988, Public Law 100-675, as amended.

The proposed project would remove, relocate and restore about 2.5 miles of the Escondido Canal that crosses the San Pasqual Reservation (Figure 2). The proposed pipeline would run generally from north to south within the existing Escondido Canal right of way (ROW) and along existing roads, primarily North Canal Road, South Canal Road, North Lake Wohlford Road, and Paradise Mountain Road, to the extent feasible. The proposed pipeline would begin at the desilting basin northeast of North Canal Road and continue in a southwesterly direction and connect to the existing underground pipeline at a location south of Paradise Mountain Road. The proposed pipeline would include a 100-foot construction corridor (50 feet on each side of pipeline alignment) for the entire 2.5-mile length.

A desilting basin and access road would be constructed at the intersection of the proposed alignment and the existing canal to remove sediment from the canal water prior to discharge into the new underground pipeline. Two desilting basin options are presented on Figure 2.

The proposed action includes reclamation of the land occupied by the replaced canal by means of demolition, grading, restoration/revegetation, and any associated mitigation of environmental impacts that may be required.
Figure 2
Overview of the Proposed Project
100049195 2016 San Pasqual Undergrounding Project

Project Features
- Existing Escondido Canal Alignment
- Proposed Pipeline - New Alignment
- Proposed Pipeline Replacing Existing Canal Alignment
- Proposed Desilting Basin and Access Road
- Reservation Boundary

Biological Resources
- 100-ft ROW/Construction Corridor
- Drainages

Sources: Esri, Atkins
2.2 Project Location

The study area is located on the San Pasqual Reservation and on San Diego County land in the community of Valley Center, approximately 5 miles northeast of Escondido (Figure 1). This location corresponds to Sections 15 and 22 in Township 11 South, Range 1 West of the Rodriguez Mountains U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles (Figure 2).

The study area is located within USGS Hydrological Unit Code 18070303 named San Luis Rey-Escondido watershed (U.S. Environmental Protection Agency 2014).

3.0 Existing Conditions

The study area currently consists of Lake Wohlford Road, South Canal Road, an unnamed dirt road, Escondido Canal, San Diego County and San Pasqual Reservation developed and undeveloped land, and San Diego North County Multiple Species Conservation Plan (MSCP) Preserve land (Hellhole Canyon). The County is currently developing additional MSCP Plans for the North County and East County areas. The Draft North County Plan is a stand-alone habitat conservation program for unincorporated lands under the County of San Diego’s jurisdiction in the northwestern part of the county, from the coast eastward to Ramona and the western flanks of Palomar Mountain. It is intended to create a 107,000-acre regional preserve system in northern San Diego County. Included are general measures and recommendations for managing plant communities and specific habitats for over 60 species. Surrounding lands are a combination of residential and agricultural land. This location corresponds to the South Coast Subregion of the California Floristic Province (Baldwin et al 2012).

The elevation of the study area is approximately 1,600 to 1,700 feet above mean sea level. Topography in the vicinity of the study area is characterized as uplands and low hills. Local terrain within the study area consists of generally flat to slightly sloping upland.

San Diego County has a Mediterranean climate with cool, wet winters and warm, dry summers. The average total precipitation in Escondido is 14.98 inches. Rainfall is generally the heaviest between January and March with precipitation ranging 2.64 to 3.43 inches. Rain is normally infrequent during summer months, with precipitation ranging 0.08 to 0.20 inch.

The average annual temperature is approximately 65 degrees Fahrenheit for Escondido. Normal summer temperatures range from 58 to 89 degrees Fahrenheit and winter temperatures range from 42 to 74 degrees Fahrenheit.

3.1 Soils

Eight mapped soil units occur within the study area and are described below (U.S. Department of Agriculture [USDA] 2016).

Cieneba very rocky coarse sandy loam, 30 to 75 percent slopes

This soil type is found on hillsides and has a parent material of Residuum weathered from granite and granodiorite. Depth to restrictive layer is 4 to 20 inches. The natural drainage class is somewhat excessively drained and water movement in the most restrictive layer is high. Available water storage is very low (0.8 inches) and depth to water table is more than 80 inches. This soil is never flooded, or ponded, and does not meet hydric criteria (USDA 2016).
Fallbrook sandy loam, 5 to 9 percent slopes, eroded
This soil type is found on hillsides and has a parent material of Residuum weathered from granite and granodiorite. Depth to restrictive layer is 4 to 60 inches. The natural drainage class is well drained and water movement in the most restrictive layer is moderately high. Available water storage is very high (13.2 inches) and depth to water table is more than 80 inches. This soil is never flooded, or ponded, and does not meet hydric criteria (USDA 2016).

Fallbrook sandy loam, 9 to 15 percent slopes, eroded
This soil type is found on hillsides and has a parent material of Residuum weathered from granite and granodiorite. Depth to restrictive layer is 4 to 60 inches. The natural drainage class is well drained and water movement in the most restrictive layer is moderately high. Available water storage is very high (13.2 inches) and depth to water table is more than 80 inches. This soil is never flooded, or ponded, and does not meet hydric criteria (USDA 2016).

Fallbrook-Vista sandy loams, 9 to 15 percent slopes
This soil type is found on hillsides and has a parent material of Residuum weathered from granite and granodiorite. Depth to restrictive layer is 40 to 60 inches. The natural drainage class is well drained and water movement in the most restrictive layer is moderately high. Available water storage is high (11.1 inches) and depth to water table is more than 80 inches. This soil is never flooded, or ponded, and does not meet hydric criteria (USDA 2016).

Fallbrook-Vista sandy loams, 15 to 30 percent slopes
This soil type is found on hillsides and has a parent material of Residuum weathered from granite and granodiorite. Depth to restrictive layer is 40 to 60 inches. The natural drainage class is well drained and water movement in the most restrictive layer is moderately high. Available water storage is very high (13.2 inches) and depth to water table is more than 80 inches. This soil is never flooded, or ponded, and does not meet hydric criteria (USDA 2016).

Placentia sandy loam, 2 to 9 percent slopes
This soil type is found on hillsides and has a parent material of alluvium derived from granodiorite. Depth to restrictive layer is more than 80 inches. The natural drainage class is well drained and water movement in the most restrictive layer is moderately low to moderately high (0.06 to 0.60 inch per hour (in/hr). Available water storage is high (9.2 inches) and depth to water table is more than 80 inches. This soil is never flooded, or ponded, and does not meet hydric criteria (USDA 2016).

Ramona sandy loam, 9 to 15 percent slopes, eroded
This soil type is found on alluvial fans at the base of or toe of slope, and has a parent material of alluvium derived from granite. Depth to restrictive layer is more than 80 inches. The natural drainage class is well drained and water movement in the most restrictive layer is moderately high (0.20 to 0.57 in/hr). Available water storage is very high (16.2 inches) and depth to water table is more than 80 inches. This soil is never flooded, or ponded, and does not meet hydric criteria (USDA 2016).

Visalia sandy loam, 2 to 5 percent slopes
This soil type is found on alluvial fans at the base of or toe of slope, and has a parent material of alluvium derived from granite. Depth to restrictive layer is more than 80 inches. The natural drainage class is well drained and water movement in the most restrictive layer is high (1.98 to 5.95 in/hr). Available water
storage is high (11.9 inches) and depth to water table is more than 80 inches. This soil is never flooded, or ponded, and does not meet hydric criteria (USDA 2016).

3.2 Vegetation Communities

The study area consists of the following ten vegetation communities: coast live oak woodland, Engelmann oak woodland, eucalyptus woodland, southern willow scrub, CSS, southern mixed chaparral, non-native grassland, agricultural, ornamental, and disturbed (Oberbauer et al., 2008). Vegetation mapping within the delineation areas is included in Appendix A, and detailed descriptions of the vegetation communities are included below.

3.2.1 Woodlands

Coast Live Oak Woodland

Southern coast live oak woodland is an open to locally dense, evergreen, sclerophyllous, woodland that is dominated by coast live oak (Quercus agrifolia). This vegetation community has a poor understory due to the tannins produced by the oaks. Poison oak (Toxicodendron diversilobum) is common and grows as a shrub and a vine. Non-native grasses are also common.

Engelmann Oak Woodland

Engelmann oak woodland is an open to locally dense, evergreen, woodland that is dominated by Engelmann oak (Quercus engelmannii) and coast live oak. Species occurring within the oak woodlands along the Escondido Canal include coast live oak, Engelmann oak, toyon (Heteromeles arbutifolia), and poison oak. Disturbed areas of this habitat included tree-of-heaven (Ailanthus altissima), Italian thistle (Carduus pycnocephalus), non-native grasses, and impacts from adjacent development (i.e., residences).

Eucalyptus Woodland

Eucalyptus woodlands are a type of non-native vegetation dominated by eucalyptus trees (Eucalyptus sp.). These introduced trees are drought tolerant once established and produce a large amount of leaf and bark litter. This habitat is generally not considered sensitive, but eucalyptus is one of many trees that can support sensitive nesting raptor species.

3.2.2 Riparian

Southern Willow Scrub

Southern willow scrub consists of dense, broadleaved, winter-deciduous stands of trees dominated by shrubby willows (Salix spp.) in association with mule fat (Baccharis salicifolia), and with scattered cottonwood (Populus sp.) and western sycamores (Platanus racemosa). This vegetation community occurs on loose, sandy or fine gravelly alluvium deposited near stream channels during flood flows. Southern willow scrub in the study area consists primarily of willow species (i.e., Salix laevigata and S. gooddingii), and small patches of the invasive weed giant reed (Arundo donax).
3.2.3 Shrublands

Coastal Sage Scrub (CSS)

CSS is dominated by subshrubs that can withstand the prolonged drought period in the summer and fall in areas of low precipitation. This habitat type occupies xeric sites characterized by shallow soils. CSS may be dominated by a variety of species depending upon soil type, slope, and aspect. Dominant CSS species found within the study area include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), deerweed (*Acmispon glaber*), and black sage (*Salvia mellifera*).

Southern Mixed Chaparral

Southern mixed chaparral is composed of broad-leaved sclerophyllous shrubs that can reach 6 to 10 feet in height and form dense often nearly impenetrable stands with poorly developed understories. Depending upon relative proximity to the coast, southern mixed chaparral in the study area is dominated by chamise (*Adenostoma fasciculatum*), mission manzanita (*Xylococcus bicol*), Ramona lilac (*Ceanothus tomentosus*), scrub oak (*Quercus berberidifolia*), mountain mahogany (*Cercocarpus betuloides*), and sugar bush (*Rhus ovata*).

3.2.4 Grasslands

Non-native Grassland

Non-native grassland is characterized by a dense to sparse cover of non-native annual grasses, and often includes a mixture of native and non-native annual forbs. Non-native grasslands are located in patches throughout the study area, along the roads and in mowed fields adjacent to residences. Species occurring within this vegetation community include ripgut brome (*Bromus diandrus*), red brome (*B. madritensis* ssp. *rubens*), ryegrass (*Festuca spp.*), mustard (*Brassica spp.*), and prickly lettuce (*Lactuca serriola*).

Disturbed/Developed

Agriculture

Agriculture refers to lands subject to routine and ongoing commercial operations associated with orchards and vineyards, intensively developed agriculture, such as dairies, nurseries, and chicken ranches, and extensive agriculture such as field and pastures and row crops.

Ornamental

Ornamental includes areas with planted landscaping. Most of the ornamental areas are along Lake Wohlford Road and are adjacent to agricultural or developed area. Landscaped areas often require irrigation.

Disturbed

Disturbed land includes areas in which there is sparse vegetative cover and where there is evidence of soil surface disturbance and compaction from previous human activity and/or the presence of building foundations and debris. Vegetation on disturbed land (if present) has a high predominance of non-native and/or weedy species that are indicators of surface disturbance and soil compaction, such as Russian thistle (*Salsola tragus*), telegraph weed (*Heterotheca grandiflora*), horehound (*Marrubium vulgare*), and sow-thistle (*Sonchus oleraceus*).
**Developed**

Developed land is that where permanent structures (and associated infrastructure) and/or pavement have been placed, preventing natural vegetation growth, or where landscaping is clearly tended and maintained. On site, developed land includes primarily residential buildings, paved roads, and adjacent landscaping.

### 4.0 Methods

Prior to conducting rare plant surveys, a thorough review of available relevant maps, databases, and literature pertaining to San Diego vegetation and plant species known to occur in the project area was performed. Aerial imagery (Google Earth 2016), topographic maps (USGS 2016), soils maps (USDA 2016), vegetation maps (City of San Diego 1997; SANDAG 2016), and other maps of the project area were acquired and reviewed to obtain updated information on the natural environmental setting. In addition, a query of sensitive species and habitat databases was conducted, including the CNDDB (CDFW 2016b), the California Native Plant Society (CNPS) Electronic Inventory (CNPS 2016), San Diego Natural History Museum (SDNHM) Plant Atlas (SDNHM 2016), and the Consortium of California Herbarium (Consortium 2016) applications, as well as a review of regional lists produced by the USFWS (2016) and CDFW (2016a, 2016b, and 2016c).

Field surveys were conducted for all potential rare plants in accordance with CDFW protocols. Surveys were conducted by qualified Atkins biologists. Table 1 includes a list of plant species that have either been sighted in the study area, or based on their habitat requirements, have the potential to occur in or near the study area.

### 5.0 Results

Two rare plants were documented within and adjacent to the study area, Engelmann oak and peninsular spineflower (*Chorizanthe leptotheca*).

As presented on the figure tiles in Appendix A, Engelmann oaks are distributed along Escondido Canal within the study area. Most occurrences (more than 50%) are of an individual tree, and the largest group of trees observed was a group of 10. Overall, 106 mature trees and two young trees were observed within the study area during rare plant surveys. These survey data indicate that Engelmann oak woodlands are rare in the study area and the surrounding area.

No spineflowers were found located within the project footprint during vegetation surveys. Six specimens were identified outside of, but very near, the northern portion of the study area, with the closest specimen located approximately 10 feet from the edge of the official study area (Appendix A, Tiles 1 and 3).

### 6.0 Conclusion and Recommendations

Sensitive natural communities including coast live oak, Engelmann oak, coastal sage scrub, chaparral, riparian, etc. that are impacted during construction would be mitigated.

As presented in Table 1 additional rare plants have the potential to occur in the study area. A qualified biologist would be onsite during construction and monitor for the presence of additional rare plant species.
Table 1  Special Status Plant Species Known or with Potential to Occur in the Study Area

<table>
<thead>
<tr>
<th>Species</th>
<th>Status(1)</th>
<th>General Habitat Description</th>
<th>Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blochman’s dudleya <em>Dudleya blochmaniae</em> ssp. <em>Blochmaniae</em></td>
<td>CRPR: 1B.1 List A</td>
<td>Rocky, often clay or serpentinite habitat. Coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grassland. Elevation 16 – 1,476 feet. Perennial herb, blooms April–June.</td>
<td>Low Potential</td>
</tr>
<tr>
<td>Brewer’s calandrinia <em>Calandrinia breweri</em></td>
<td>CRPR: 4.2 List D</td>
<td>Chaparral, coastal scrub, sandy or loamy, disturbed sites and burns. Elevation 33 - 4,003 feet. Annual herb, blooms January-June.</td>
<td>Low Potential</td>
</tr>
<tr>
<td>California adolphia <em>Adolphia californica</em></td>
<td>CRPR: 2B.1 List B</td>
<td>Clay soils, chaparral, coastal scrub, and valley and foothill grassland. Elevation 148 – 2,428 feet. Perennial deciduous shrub, blooms December-May.</td>
<td>Low to Moderate Potential</td>
</tr>
<tr>
<td>Chaparral beargrass <em>Nolina cismontana</em></td>
<td>CRPR: 1B.2 List A</td>
<td>Chaparral (gabbro or sandstone habitat), coastal scrub. Elevation 459 – 4,183 feet. Perennial herb, blooms March–July.</td>
<td>Low Potential</td>
</tr>
<tr>
<td>Chaparral rein orchid <em>Piperia cooperi</em></td>
<td>CRPR: 4.2 List D</td>
<td>Chaparral, cismontane woodland, valley and foothill grassland. Elevation 49 - 5,200 feet. Perennial herb, blooms March-June.</td>
<td>Low Potential</td>
</tr>
<tr>
<td>Cleveland’s bush monkey flower <em>Mimulus clevelandii</em></td>
<td>CRPR: 4.2 List D</td>
<td>Chaparral, cismontane woodland, lower montane coniferous forest, and gabbroic, often in disturbed areas. Elevation 1,476-6,562 feet. Perennial rhizomatous herb, blooms April-July.</td>
<td>Low Potential</td>
</tr>
<tr>
<td>Engelmann oak <em>Quercus engelmannii</em></td>
<td>CRPR: 4.2 List D</td>
<td>Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. Elevation 164 – 4,265 feet. Perennial deciduous tree, blooms March-June.</td>
<td>Occurs</td>
</tr>
<tr>
<td>Fish’s milkwort <em>Polygala cornuta</em> var. <em>fishiae</em></td>
<td>CRPR: 4.3 List D</td>
<td>Chaparral, cismontane woodland, riparian woodland. Elevation 328-3,281 feet. Perennial deciduous shrub, blooms May-August.</td>
<td>Moderate Potential</td>
</tr>
<tr>
<td>Gander’s ragwort <em>Pakera (=Senecio) ganderi</em></td>
<td>CRPR: 1B.2 List A</td>
<td>Chaparral (burns, gabbroic outcrops). Elevation 1,312 – 3,937 feet. Perennial herb, blooms April-June.</td>
<td>Low Potential</td>
</tr>
<tr>
<td>Heart-leaved pitcher sage <em>Lepechinia cardiophylla</em></td>
<td>CRPR: 1B.2 List A</td>
<td>Closed-cone coniferous forest, chaparral, cismontane woodland. Elevation 1,706-4,495 feet. Perennial shrub, blooms April-July.</td>
<td>Low Potential</td>
</tr>
<tr>
<td>Narrow-petaled rein orchid <em>Piperia leptopetala</em></td>
<td>CRPR: 4.3 List D</td>
<td>Cismontane woodland, lower montane coniferous forest, upper montane coniferous forest. Elevation 1,247-7,300 feet. Perennial herb, blooms May-July.</td>
<td>Low Potential</td>
</tr>
<tr>
<td>Ocellated Humboldt lily <em>Lilium humboldtii</em> var. <em>ocellatum</em></td>
<td>CRPR: 4.2 List D</td>
<td>Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland. Elevation 98-5,906 feet. Perennial bulbiferous herb, blooms March-August.</td>
<td>Moderate Potential</td>
</tr>
<tr>
<td>Species</td>
<td>Status(1)</td>
<td>General Habitat Description</td>
<td>Occurrence</td>
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<tr>
<td>Orcutt’s brodiaea</td>
<td>CRPR: 1B.1 List A</td>
<td>Mesic, clay, sometimes serpentinite, closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools. Elevation 98 – 5,551 feet. Perennial bulbiferous herb, blooms April–May.</td>
<td>Low Potential</td>
</tr>
<tr>
<td>Parry’s tetracoccus</td>
<td>CRPR: 1B.2 List A</td>
<td>Chaparral and coastal scrub. Elevation 541 – 3,281 feet. Perennial deciduous shrub, blooms April–May.</td>
<td>Low Potential</td>
</tr>
<tr>
<td>San Diego ambrosia</td>
<td>FE CRPR: 1B.1 List A</td>
<td>Sandy loam or clay, often in disturbed areas, sometimes alkaline chaparral, coastal scrub, valley and foothill grassland, and vernal pools. Elevation 66 – 1,362 feet. Perennial rhizomatous herb, blooms April–October.</td>
<td>Low Potential</td>
</tr>
<tr>
<td>San Diego gumplant</td>
<td>CRPR: 1B.2 List A</td>
<td>Chaparral, lower montane coniferous forest, meadows and seeps, and valley and foothill grassland. Elevation 607-5,275 feet. Perennial herb, blooms May-October.</td>
<td>Moderate Potential</td>
</tr>
<tr>
<td>San Diego milk-vetch</td>
<td>CRPR: 1B.2 List A</td>
<td>Chaparral, cismontane woodland. Elevation 1,000 – 4,900 feet. Perennial herb, blooms May-August.</td>
<td>Moderate Potential</td>
</tr>
<tr>
<td>Singlewhorl burrobrush</td>
<td>CRPR: 2B.2</td>
<td>Sandy soils. Elevation 33-1,640 feet. Perennial shrub, blooms August–November.</td>
<td>Low Potential</td>
</tr>
</tbody>
</table>
Table 1 | Special Status Plant Species Known or with Potential to Occur in the Study Area

<table>
<thead>
<tr>
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(1) **Federal Status (listed under the Endangered Species Act)** – FE = Federally Endangered; FT = Federally Threatened; FC = Candidate for federal listing; FD = Delisted

**State Status (listed under California Endangered Species Act)** – CE = State Endangered; CT = State Threatened; CR = listed as Rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.

**CRPR (California Rare Plant Ranks, formerly known as CNPS lists)** – 1A = Presumed Extirpated in California and Either Rare or Extinct Elsewhere; 1B = Plants Rare, Threatened, or Endangered in California and Either Rare or Extinct Elsewhere; 2A = Plants Presumed Extirpated in California, But Common Elsewhere; 2B = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere; 3 = Plants in need of more information; 4 = Plants of limited distribution. x.1 = Seriously threatened in California (>80% of occurrences threatened or high degree and immediacy of threat). x.2 = Moderately threatened in California (20-80% of occurrences threatened or moderate degree and immediacy of threat). x.3 = Not very endangered in California (<20% of occurrences threatened or low degree and immediacy of threat or no current threats known)

**County of San Diego Status** – Lists A and B = Plant species that have a very high level of sensitivity, either because they are listed as threatened or endangered or because they have very specific natural history requirements that must be met. Lists C and D = plant species that are becoming less common, but are not yet so rare that extirpation or extinction is imminent without immediate action. These species tend to be prolific within their suitable habitat types.

Sources: County 2012; CNDDB 2016; SANGIS 2012; USFWS 2016; CDFW 2016

7.0 References


California Department of Fish and Wildlife (CDFW). 2016b. California Natural Diversity Data Base (CNDDB), computer listings and map locations of historic and current recorded occurrences of


APPENDIX A

Vegetation and Rare Plant Tiles

Plant Species Observed in Study Area
Vegetation and Rare Plant Tiles
Tile 1
Vegetation and Rare Plants in Study Area

Sources: Esri 2016, Atkins 2016

Vegetation Abbreviations
AGR = Agriculture
CLOW = Coast Live Oak Woodland
CSS = Coastal Sage Scrub
DEV = Developed
DIST = Disturbed
EUC = Eucalyptus Woodland
NNG = Non-native Grassland
ORN = Ornamental
QUEN = Engelmann Oak Woodland
SMC - Southern Mixed Chapparal
SWS = Southern Willow Scrub

Special Status Plant Species
- Peninsular Spineflower
- Engelmann Oak Trees

Project Features
- Escondido Canal
- Proposed Pipeline
- Access Area 1
- Access Area 2
- Reservation Boundary

Biological Resources
- Study Area
- Drainages
- Vegetation

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Sources: Esri 2016, Atkins 2016
Vegetation and Rare Plants in Study Area

Vegetation Abbreviations
- AGR = Agriculture
- CLOW = Coast Live Oak Woodland
- CSS = Coastal Sage Scrub
- DEV = Developed
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- ORN = Ornamental
- QUEN = Engelmann Oak Woodland
- SMC = Southern Mixed Chapparal
- SWS = Southern Willow Scrub

Special Status Plant Species
- Peninsular Spineflower
- Engelmann Oak Trees

Legend:
- Project Features
  - Escondido Canal
  - Proposed Pipeline
  - Access Area 1
  - Access Area 2
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Special Status Plant Species
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1
2
3 - 4
5 - 10

Project Features
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Sources: Esri 2016, Atkins 2016

Tile 3
Vegetation and Rare Plants in Study Area

7/15/2016  bela7036  \SUSSDA1101\data\Clients\Escondido\100049195 VID SPUP ENV EA MND\GIS\data\Vegetation&RarePlants.mxd
Vegetation and Rare Plants in Study Area

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Sources: Esri 2016, Atkins 2016

100049195 2016 San Pasqual Undergrounding Project

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- 2
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Sources: Esri 2016, Atkins 2016

Tile 6
Vegetation and Rare Plants in Study Area

Escondido Canal
Proposed Pipeline
Access Area 1
Access Area 2
Reservation Boundary
Vegetation and Rare Plants in Study Area

Tile 7

Project Features
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Vegetation and Rare Plants in Study Area

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Sources: Esri 2016, Atkins 2016

100049195 2016 San Pasqual Undergrounding Project
Plant Species Observed in Study Area
<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
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<tbody>
<tr>
<td><strong>FERNS AND FERN ALLIES</strong></td>
<td><strong>Maidenhair Fern Family</strong></td>
</tr>
<tr>
<td><em>Adiantum jordanii</em></td>
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<td><em>Pellaea andromedifolia</em></td>
<td>Coffee Fern</td>
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<td><em>Pellaea mucronata var. mucronata</em></td>
<td>Bird’s Foot Cliff-brake</td>
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<td><em>Pentagamma triangularis spp. triangularis</em></td>
<td>California Goldback fern</td>
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<td><strong>DICOTS</strong></td>
<td><strong>Aizoaceae</strong></td>
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<td><em>Adoxa Family</em></td>
<td><strong>Blue Elderberry</strong></td>
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<td>Sambucus nigra ssp. caerulea</td>
<td>Adoxa Family</td>
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<td><strong>AMARANTHACEAE</strong></td>
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<td><em>Amaranthus albus</em></td>
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<td><em>Salsola canariensis</em></td>
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<td><strong>ANACARDIACEAE</strong></td>
<td><strong>Sumac Family</strong></td>
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<td>Malosma laurina</td>
<td>Laurel Sumac</td>
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<td>Rhus ovata</td>
<td>Sugar Bush</td>
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<td>Rhus trilobata</td>
<td>Skunkbrush</td>
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<td><em>Schinus molle</em></td>
<td>Peruvian Pepper Tree</td>
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<td>Toxicodendron diversilobum</td>
<td>Western Poison-Oak</td>
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<td><strong>APROCYNACEAE</strong></td>
<td><strong>Dogbane Family</strong></td>
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<td><em>Vinca major</em></td>
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<td>Ambrosia acanthicarpa</td>
<td>Flatspine bur</td>
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<td>Ambrosia psilostachya</td>
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<td>Artemisia californica</td>
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<td>Artemisia douglasiana</td>
<td>Douglas Mugwort</td>
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<td>Baccharis salicifolia</td>
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<td>Brickellia californica</td>
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<td><em>Carduus pycnocephalus</em></td>
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<td><em>Centaurea melitensis</em></td>
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<td>Chaenactis artemisiifolia</td>
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<td>Chaenactis glabrisculosa var. glabrisculosa</td>
<td>Yellow Pincushion</td>
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<td><em>Cynara cardunculus ssp. cardunculus</em></td>
<td>Artichoke Thistle</td>
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<td><em>Dimorphotheca sinuata</em></td>
<td>Blue-Eye Cape-Marigold</td>
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<td>Erigeron foliosus var. foliosus</td>
<td>Leafy Daisy</td>
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<td>Erinophyllum confertiflorum var. confertiflorum</td>
<td>Long-Stem Golden-Yarrow</td>
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<td>Gutierrezia californica</td>
<td>California Matchweed</td>
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<td>Hazardia squarrosa</td>
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<td><em>Hedypnoides cretica</em></td>
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<td>Heterotheca grandiflora</td>
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<td><em>Hypochaeris glabra</em></td>
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<td>Isocoma menziesii</td>
<td>Menzies’ Goldenbush</td>
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<td><em>Lactuca serriola</em></td>
<td>Prickly Lettuce</td>
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<td>Pseudognaphalium buntei</td>
<td>Bicolor Cudweed</td>
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<td>Pseudognaphalium californicum</td>
<td>California Everlasting</td>
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<td>Rafinesquia californica</td>
<td>California Chicory</td>
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<td><em>Sonchus asper ssp. asper</em></td>
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<td>Carpobrotus edulis</td>
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<td><strong>BORAGINACEAE</strong></td>
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<td>Cryptantha micromeres</td>
<td>Minute-Flower Cryptantha</td>
</tr>
<tr>
<td>Pectocarya linearis ssp. ferocula</td>
<td>Slender Pectocarya</td>
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</tbody>
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<td><strong>BRASSICACEAE</strong></td>
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<tr>
<td>*Hirschfeldia incana</td>
<td>Mustard Family</td>
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<td>Lepidium lasiocarpum</td>
<td>Short-Pod Mustard</td>
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<td>*Sisymbrium irio</td>
<td>Southern Pepperwort</td>
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<td></td>
<td>London Rocket</td>
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<td><strong>CAPRIFOLIACEAE</strong></td>
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<tr>
<td>Lonicera subspicata var. denudata</td>
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<td><strong>CARYOPHYLLACEAE</strong></td>
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<td>Silene antirrhina</td>
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<td>*Silene galica</td>
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<td><strong>CISTACEAE</strong></td>
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<td>Helianthemum scoparium</td>
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<td><strong>CONVOLVULACEAE</strong></td>
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<td>Calystegia macrostegia ssp. tenuifolia</td>
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<td>Cuscuta californica var. breviflora</td>
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<td><strong>CRASSULACEAE</strong></td>
<td>Stonecrop Family</td>
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<td>Crassula connata</td>
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<td>Dudleya edulis</td>
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<td>Dudleya pulverulenta</td>
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<td><strong>CUCURBITACEAE</strong></td>
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<td>Marah macrocarpus var. macrocarpus</td>
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<td>Datisca glomerata</td>
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<td>Xylococcus bicolor</td>
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<td>Chamaesyce polycarpa</td>
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<td>Croton setigerus</td>
<td>Dove Weed</td>
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<td><strong>FABACEAE</strong></td>
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<td>Acacia cyclops</td>
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<td>Acmispon micranthus</td>
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<td>Acmispon heermannii var. heermannii</td>
<td>Heermann’s Lotus</td>
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<td>Acmispon americanus</td>
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<td>Acmispon glaber var. brevilatus</td>
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<td>Acmispon strigous</td>
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<td>Amorpha fruticosa</td>
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<td>Lathyrus vestitus var. alefeldii</td>
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<td>*Vicia sativa ssp. nigra</td>
<td>Narrow-Leaf Vetch</td>
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<td><strong>FAGACEAE</strong></td>
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<td>Quercus agrifolia var. agrifolia</td>
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<td>Quercus berberidifolia</td>
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<td>Quercus engelmannii</td>
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<td>Quercus xacutidens</td>
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<td><strong>GERANIACEAE</strong></td>
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<td>*Erodium botrys</td>
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<td>*Erodium cicutarium</td>
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<td>*Erodium moschatum</td>
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<td>Ribes indecorum</td>
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Eriodictyon crassifolium var. crassifolium  
Eucrypta chrysanthemefolia var. chrysanthemefolia  
Phacelia cicutaria var. hispida  
Phacelia parryi  
Phacelia ramosissima var. latifolia | Waterleaf Family  
Felt-Leaf Yerba Santa  
Common Eucrypta  
Caterpillar Phacelia  
Parry's Phacelia  
Branching Phacelia |
| **LAMIACEAE**  
Marrubium vulgare  
Salvia apiana  
Salvia clevelandii  
Salvia columbariae  
Salvia melifera  
Stachys ajugoides var. rigida | Mint Family  
Horehound  
White Sage  
Fragrant Sage  
Chia  
Black Sage  
Rigid Hedge-Nettle |
| **MALVACEAE**  
*Malva parviflora | Mallow Family  
Cheeseweed |
| **MYOPORACEAE**  
*Myoporum laetum | Emu bush Family  
Ngaio Tree |
| **MYRTACEAE**  
*Eucalyptus camaldulensis | Myrtle Family  
River Red gum |
| **OLEACEAE**  
Fraxinus velutina  
*Olea europaea | Olive Family  
Velvet Ash  
Olive |
| **ONAGRACEAE**  
Camissonia bistorta  
Camissonia californica  
Camissonia hirtella  
Clarkia epilobioides | Evening Primrose Family  
California Sun cup  
False-Mustard  
Field Sun cup  
Canyon Godetia |
| **OXALIDACEAE**  
*Oxalis pes-caprae | Oxalis Family  
Bermuda-Buttercup |
| **PAEONIACEAE**  
Peonia californica | Peony Family  
California Peony |
| **PAPAVERACEAE**  
Eschscholzia californica  
Mimulus aurantiacus var. pubescens  
Mimulus guttatus | Poppy Family  
California Poppy  
Sticky Monkey flower  
Seep Monkey flower |
| **PLANTAGINACEAE**  
Antirrhinum nuttallianum ssp. nuttallianum  
Keckiella antirrhinoides var. antirrhinoides  
Keckiella cordifolia  
Penstemon spectabilis var. spectabilis | Plantain Family  
Nuttall’s Snapdragon  
Yellow Bush Penstemon  
Climbing Bush Penstemon  
Showy Penstemon |
| **PLATANACEAE**  
Platanus racemosa | Sycamore Family  
Western Sycamore |
| **POLEMONIACEAE**  
Eriastrum sapphirinum ssp. Dosyanthum  
Navarretia hamata ssp. hamata | Phlox Family  
Many-Flower Woolly-Star  
Hooked Skunkweed |
| **POLYGONACEAE**  
Chorizanthe leptotheca  
Chorizanthe ssp.  
Eriogonum fasciculatum  
Pterostegia drymarioides  
*Rumex crispus | Buckwheat Family  
Ramona Spineflower  
Spineflower species  
California Buckwheat  
Granny's Hairnet  
Curly Dock |
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<td>Scarlet Pimpernel</td>
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<td>RANUNCULACEAE</td>
<td>Crowfoot Family</td>
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<tr>
<td>Prunus ilicifolia ssp. ilicifolia</td>
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<tr>
<td>Galium nuttalii ssp. nuttalii</td>
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<td>*Galium parisense</td>
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<td>Galium porrigens var. porrigens</td>
<td>Climbing/Oval-Leaf Bedstraw</td>
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<tr>
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<td>Sacred Thorn-Apple</td>
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<tr>
<td>*Nicotiana glauca</td>
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<td>African Cornflag</td>
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<td>Scientific Name</td>
<td>Common Name</td>
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<td><em>Muilla maritima</em></td>
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*Non-native species